IFT 266 Introduction to Network Information Communication Technology

Lab 15

Cisco Discovery Protocol (CDP)

After you complete each step, put an 'x' in the completed box

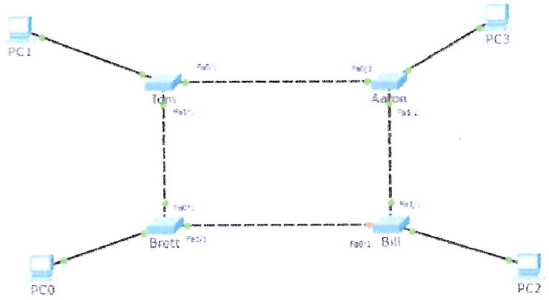
or

Answer the open question

Most of the Cisco devices can talk to each other.

These Cisco devices can see each other as soon as you power on the link and connect them with Ethernet cable.

1. Create the following network topology on Packet Tracer



All the switches are on, plugged in and links are up (green).

We do however have one orange link (spanning tree has blocked that link so we do not have a loop).

Completed ☒

2. Click on Brett and go to the CLI tab (command prompt), go into enable mode and type the "show cdp" command

```
Switch>enable
Switch#show cdp
Global CDP information:
    Sending CDP packets every 60 seconds
    Sending a holdtime value of 180 seconds
    Sending CDPv2 advertisements is enabled
Switch#
```

The first piece of information tells us the switch will send CDP packets every 60 seconds and have a hold time of 180 (we come back to the holdtime later in the lab).

The switch will send out a CDP signal out each link every 60 seconds.

This CDP signal is like 'hello packets' which say "hi, I'm a switch, I'm here and would like to know you".

Completed ☒

3. Now type in show cd ? command.

This command will provide us with extra parameters/stuff that we can see.

```
Switch#show cdp ?
  entry      Information for specific neighbor entry
  interface  CDP interface status and configuration
  neighbors  CDP neighbor entries
  <cr>
Switch#show cdp
```

4. From previous step, we will look at show cdp neighbors command which allows us to see what else is out there...

```
Switch#show cdp neighbor
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID    Local Intrfce   Holdtme    Capability   Platform    Port ID
Switch_Tom   Fas 0/1          41             S       PT3000      Fas 1/1
Switch Bill  Fas 1/1          43             S       PT3000      Fas 0/1
```

So "Brett" sees Tom and Bill. The local interface says that I'm reaching Tom via 0/1 interface.

Brett to Bill goes out via interface 1/1.

Platform 3000 is the model of the other switch which we are connected to.

On the Port ID, this is other side's ports which are connected to us. Tom is connecting to Brett via Fa1/1

Show cdp neighbors is very useful when you go onto an unknown network of Cisco routers and switches so you can see what is connected to what.

5. Another command we can use is the CDP neighbors detail.

This command gives us far more detail i.e. IP addresses if any are configured and IOS versions (what software that device is running)

```
Switch#show cdp neighbors detail

Device ID: SwitchTom
Entry address(es):
Platform: cisco PT3000, Capabilities: Switch
Interface: FastEthernet0/1, Port ID (outgoing port): FastEthernet1/1
Holdtime: 178

Version :
Cisco Internetwork Operating System Software
IOS (tm) PT3000 Software (PT3000-I6Q4L2-M), Version 12.1(22)EA4, RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2006 by cisco Systems, Inc.
Compiled Fri 12-May-06 17:19 by pt_team

advertisement version: 2
Duplex: full
---------------------------

Device ID: SwitchBill
Entry address(es):
Platform: cisco PT3000, Capabilities: Switch
Interface: FastEthernet1/1, Port ID (outgoing port): FastEthernet0/1
Holdtime: 120

Version :
Cisco Internetwork Operating System Software
IOS (tm) PT3000 Software (PT3000-I6Q4L2-M), Version 12.1(22)EA4, RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2006 by cisco Systems, Inc.
Compiled Fri 12-May-06 17:19 by pt_team
```

Completed ☒

6. Now we will configure an IP address on Tom (you should be quite familiar with this process by now).

   As you can see the VLAN is not turned on.

```
SwitchTom>en
SwitchTom#config t
Enter configuration commands, one per line.  End with CNTL/Z.
SwitchTom(config)#int vlan 1
SwitchTom(config-if)#ip address 1.1.1.1 255.255.255.0
SwitchTom(config-if)#end
SwitchTom#
%SYS-5-CONFIG_I: Configured from console by console

SwitchTom#show ip int brief
Interface              IP-Address      OK? Method Status                Protocol

FastEthernet0/1        unassigned      YES manual up                    up

FastEthernet1/1        unassigned      YES manual up                    up

FastEthernet2/1        unassigned      YES manual up                    up

FastEthernet3/1        unassigned      YES manual down                  down

FastEthernet4/1        unassigned      YES manual down                  down

FastEthernet5/1        unassigned      YES manual down                  down

Vlan1                  1.1.1.1         YES manual administratively down down
SwitchTom#
```

Completed ☒

7. Now turn on the VLAN

```
SwitchTom#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SwitchTom(config)#int vlan 1
SwitchTom(config-if)#no shut

SwitchTom(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up
```

8. Now re-run the show i pint brief command and see the updated status of the VLAN which is no up and up

```
SwitchTom#show ip int brief
Interface              IP-Address      OK? Method Status                Protocol

FastEthernet0/1        unassigned      YES manual up                    up

FastEthernet1/1        unassigned      YES manual up                    up

FastEthernet2/1        unassigned      YES manual up                    up

FastEthernet3/1        unassigned      YES manual down                  down

FastEthernet4/1        unassigned      YES manual down                  down

FastEthernet5/1        unassigned      YES manual down                  down

Vlan1                  1.1.1.1         YES manual up                    up
SwitchTom#
```

9. Now go back to Brett and run the command show cdp neighbors detail.

   We can now see the IP address that we setup on Tom. It shows that there is an IP address on that particular switch.

```
Switch#show cdp neighbors detail

Device ID: SwitchTom
Entry address(es):
  IP address : 1.1.1.1
Platform: cisco PT3000, Capabilities: Switch
Interface: FastEthernet0/1, Port ID (outgoing port): FastEthernet1/1
Holdtime: 163

Version :
Cisco Internetwork Operating System Software
IOS (tm) PT3000 Software (PT3000-I6Q4L2-M), Version 12.1(22)EA4, RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2006 by cisco Systems, Inc.
Compiled Fri 12-May-06 17:19 by pt_team

advertisement version: 2
Duplex: full
```

10. So far we not configured nothing on Brett i.e. no IP addresses, nothing at ll.

    If I have no IP addresses setup on Brett, how do I see the IP address on Tom?

    CDP exchanges information on a lower level i.e. exchanges information on layer 2.

    So as long as you have a link and the lights are on (green) you can exchange information including IP addresses to the IOS version.

    If you are in a high security environment, you may want to turn off CDP off.

    Go into Tom and type the 'no cdp run' command which will kill CDP for the entire switch

```
SwitchTom#config t
Enter configuration commands, one per line.  End with
CNTL/Z.
SwitchTom(config)#no cdp run
SwitchTom(config)#end
SwitchTom#
%SYS-5-CONFIG_I: Configured from console by console

SwitchTom#show cdp
% CDP is not enabled
SwitchTom#
```

CDP is not enabled on Tom anymore.

Completed 

Go into Brett and type show cdp command and now let's looks at the holdtime value.

This holdtime value means that if you do not receive any information from your neighbors in 180 seconds, you will consider the other side to be dead and take it out of your table.

```
Switch>en
Switch#show cdp
Global CDP information:
    Sending CDP packets every 60 seconds
    Sending a holdtime value of 180 seconds
    Sending CDPv2 advertisements is enabled
Switch#
```

Completed 

Now run show cdp neighbors and Tom has disappeared from the table as the holdtime eventually hits zero and drops from the table.

```
Switch#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID     Local Intrfce   Holdtme    Capability   Platform     Port ID
SwitchBill    Fas 1/1          146            S       PT3000       Fas 0/1
Switch#
```

11. You can just turn off CDP on particular interfaces rather than the whole switch by going into that interface like when you are connecting to another provider's device as they will not need to see your devices details.

```
Switch#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int fast 0/1
Switch(config-if)#no cdp ?
  enable  Enable CDP on interface
Switch(config-if)#no cdp enable
```

Completed ☒